

## REMARKS

The applicants have considered the Office action dated March 7, 2007, and references it cites. Claims 1-28 are pending and at issue, of which claims 1, 12, 22 and 26 are independent. In view of the following remarks, it is respectfully submitted that the pending claims are in condition for allowance and favorable reconsideration is respectfully requested.

### **Claims 1-11: Rejection under 35 U.S.C. § 103**

The Office action rejected pending independent claim 1 under 35 U.S.C § 103(a) as being unpatentable over *Chou* (U.S. Patent No. 5,892,906) in view of *England* (U.S. Patent No. 6,327,652), *Patel* (U.S. Patent No. 6,327,660) and *Zirlaw* (U.S. Application Pub. No. 2004/0128425). Independent claim 1 recites a method of receiving a password comprising: receiving a password routine, the password routine being digitally signed using a private key; authenticating the password routine using a public key associated with the private key; storing the password routine in a first area of a memory device, the first area of the memory device being unavailable to a memory management unit, the memory device including a second area, the second area being available to the memory management unit; and executing the password routine in a pre-boot environment to receive the password.

In a previous Office action dated August 22, 2006, independent claim 1 was rejected under 35 U.S.C. § 102(b) as being anticipated by only the single reference *Patel* mentioned above. As indicated in the present Office action, applicants' responsive remarks were persuasive in showing that the legal test for unpatentability due to anticipation had been improperly applied. The rejection of independent claim 1 under 35 U.S.C. § 102(b) was, therefore,

withdrawn. However, the present Office action now asserts that independent claim 1 is still unpatentable, not through being anticipated by another reference, but by being obvious in light of a combination of four prior art references. As explained below, it is respectfully submitted that independent claim 1 has been subjected to yet another improper application of a legal standard for unpatentability, namely the test for obviousness under 35 U.S.C. § 103(a).

“[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR Intl. Co. v. Teleflex, Inc.*, No. 04-1350, slip op. at 14 (U.S. Apr. 30, 2007). Instead, an “explicit” analysis showing “an *apparent* reason to combine known elements in the fashion claimed” is required to render a claim obvious. *Id.* (emphasis added). In particular, “rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Id.* (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). Although the “explicit” analysis can rely on “articulated reasoning with some rational underpinning” involving more than just “precise teachings” in the prior art, *Id.* at 14, the analysis cannot rely on “*ex post* reasoning” and hindsight to establish obviousness, *Id.* at 17. In fact, the Supreme Court has repeatedly warned that an obviousness analysis must “guard against slipping into use of hindsight” and “resist the temptation to read into the prior art the teachings of the invention in issue.” *Graham v. John Deere Co.*, 383 U.S. 1, 36 (1966) (quoting *Monroe Auto*

*Equip. Co. v. Heckethorn Mfg. & Supply Co.*, 332 F. 2d 406, 412 (6th Cir. 1964)); *see also KSR Intl. Co.*, slip op. at 17.

Here, with reference to independent claim 1, the present Office action initially asserts that each of the elements of independent claim 1 was known, independently, in the cited prior art. In particular, the Office action cites *Chou* for the proposition of receiving a password routine, storing the password routine and executing the password routine in a pre-boot environment to receive the password. (See p. 3, ¶ 1, of the Office action.) *England* is cited for the proposition of digitally signing the password routine using a private key and authenticating the password routine with a public key associated with the private key. (See p. 3, ¶ 2, of the Office action.) *Zitlaw* is cited for the proposition of a memory management unit. (See p. 4, ¶ 1, of the Office action.) Finally, *Patel* is cited for the proposition of first and second *electronic systems*, which the Office action characterizes as being equivalent to first and second *memory areas* of a *memory device*. (See p. 3, ¶ 4, of the Office action.) Assuming, *arguendo*, that the foregoing characterization of the cited references is accurate, a legal conclusion of obviousness then requires the “explicit” analysis showing the “apparent reason to combine [the] known elements” or an “articulated reasoning with some rational underpinning.”

However, the Office action ultimately fails to provide the necessary “explicit” analysis containing an “articulated reasoning with some rational underpinning” for combining the cited references to render independent claim 1 obvious. Instead, the Office action merely provides a conclusory statement of obviousness, which goes against the above-described legal standard set forth by the Supreme Court in *KSR Intl. Co.* In particular, after citing *Chou*,

*England*, *Zitlaw*, and *Patel* for the above-mentioned propositions, the Office action makes the conclusory and not rationally underpinned statement that “it would have been obvious to a person of ordinary skill in the art to modify the method of receiving a password routine of [*Chou*] such that it would be digitally signed and authenticated as in [*England*] to include first and second memory areas [of *Patel*] such that it would limit the availability to the memory management unit as in [*Zitlaw*].” (See p. 4, ¶ 2, of the Office action.) The preceding statement is akin to a conclusory statement of the form “it would have been obvious to modify A as in B to include C and D,” which provides no “articulated reasoning with some rational underpinning” for combining the elements or why such a combination would render independent claim 1 obvious. Instead, the asserted combination of *Chou*, *England*, *Zitlaw*, and *Patel*, as well as independent claim 1 itself, are found to be obvious just because the Office action says they are obvious. This is an improper analysis under the legal standard for obviousness in light of *KSR Intl. Co.*

In an attempt to justify this conclusory statement, the Office action follows with an alleged motivation for its asserted combination of *Chou*, *England*, *Zitlaw*, and *Patel* – “to protect password entry and authentication from authorized [sic] disclosure/access in a pre-boot environment.” (See p. 4, ¶ 2, of the Office action.) This motivation falls well short of the “explicit” analysis and “articulated reasoning with some rational underpinning” for combining the elements that is required to establish obviousness. Even if viewed in a most favorable light, the alleged motivation “to protect password entry and authentication from authorized [sic] disclosure/access in a pre-boot environment” is apparently related to, at most, the background knowledge of

password routine execution (seemingly provided by *Chou*) and key-based authentication (seemingly provided by *England*) and, thus, could arguably be used to infer a reason for combining only *Chou* and *England*.

However, this alleged motivation of providing password entry and authentication protection, without more, has no apparent (i.e., readily seen) relationship to the memory management unit of *Zitlaw* or the two electronic systems of *Patel* (which stand for the proposition of two memory areas of a memory device). Thus, as explained below, there is no “apparent reasoning” or “rational underpinning” to support a legal conclusion of obviousness.

In fact, as noted by the Court in *KSR Intl. Co.* the principle that “when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be non-obvious” is a corollary to the principle that a “combination must do more than yield a predictable result.” *Id at 12*. Thus, the Court supports the well known principle that it is improper to combine references where the references teach away from their combination. *In re Grasselli*, 218 USPQ. 769, 779 (Fed. Cir. 1983). That is, proceeding against the teaching of the references is unapparent reasoning that is not rationally based. As previously mentioned, the Office action asserts the combination of *Chou*, *England*, *Zitlaw*, and *Patel* for the general proposition of a “method of receiving a password routine ... such that it would be digitally signed and authenticated ... to include first and second memory areas ... such that it would limit the availability to [a] memory management unit.” (See p. 4, ¶ 2, of the Office action.) Nothing in this asserted general combination or its alleged motivation provides an “apparent reason” or a “rational underpinning” to combine the password routine, the

memory management unit and a memory device having first and second memory areas in claim 1's particular arrangement of storing the password routine in the first area of the memory device, with the first area of the memory device being unavailable to the memory management unit and the second area being available to the memory management unit.

In other words, without relying on impermissible hindsight gleaned through the recitations of independent claim 1, the Office action provides no “*apparent reason*” (i.e., a readily seen reason) or “*rational underpinning*” as to why a person of ordinary skill in the art would consider combining the memory management unit of *Zitlaw* and the two electronic systems of *Patel* to achieve the alleged motivation of password entry and authentication protection. In fact, the references make it clear that reasoning for such a combination would not be apparent because the prior art counsels against the combination. Thus, without any “*apparent reasoning*” or “*rational underpinning*” for combining *Zitlaw* and *Patel* with *Chou* and *England*, the Office action fails to establish how combining these four references would have been obvious to a person of ordinary skill in the art.

In the absence of “*explicit*” analysis and “*articulated reasoning with some rational underpinning*” for combining known elements in accordance with independent claim 1, the Office action fails to establish a *prima facie* case of obviousness relative to this claim.

Having shown that the Office action fails to establish a *prima facie* case of obviousness relative to independent claim 1, the applicants further assert that independent claim 1 is not obvious because it incorporates new functionality into its elements that yields unexpected and fruitful results. It is

well established that “when a [claimed combination of elements] ‘simply arranges old elements with each performing the same function it had been known to perform’ and yields no more than one would expect from such an arrangement, the combination is obvious.” *KSR Intl. Co. v. Teleflex, Inc.*, No. 04-1350, slip op. at 13 (U.S. Apr. 30, 2007) (citing *Sakraida v. AG Pro, Inc.*, 425 U. S. 273, 282 (1976)). Conversely, “[t]he fact that the elements work[] together in an unexpected and fruitful manner support[s] the conclusion that [the claimed invention is] not obvious to those skilled in the art.” *Id.* at 12. Thus, an obviousness analysis “must ask whether the [claimed combination of elements] is more than the predictable use of prior art elements according to their established functions.” *Id.*

Independent claim 1 combines a memory management unit with a memory device having first and second memory areas such that the first area of the memory device is actually unavailable to the memory management unit. According to the Office action’s cited prior art reference of *Zitlaw*, memory management units are utilized to implement “more complex decoding schemes” to “map individual memory device address ranges or portions of address ranges into the physical memory map that the memory subsystem presents.” (See ¶ [0008].) Thus, the type of prior art memory management unit relied upon by the Office action seemingly operates to provide access to memory devices or portions (e.g., areas) of memory devices. It would be counterintuitive and, therefore, unexpected, as well as unapparent reasoning, to combine such a memory management unit and a memory device so that the memory management unit would intentionally not be able to access an area of the memory device. However, it is this same “unexpected” manner of

combination that yields the “fruitful” method of receiving a password recited by independent claim 1.

Accordingly, because the Office action fails to provide an “explicit” analysis and “articulated reasoning” for combining the cited references of *Chou*, *England*, *Zitlaw*, and *Patel*, or for combining these references in accordance with particular arrangement of independent claim 1, it is respectfully submitted that a *prima facie* case of obviousness has not been made. Furthermore, independent claim 1 must be found non-obvious because it incorporates new functionality into its elements that yields unexpected and fruitful results. Thus, the applicants respectfully submit that independent claim 1 and claims 2-11 depending therefrom are in condition for allowance.

**Claims 26-28: Rejection under 35 U.S.C. § 103**

The Office action rejected pending independent claim 26 under 35 U.S.C § 103(a) as being unpatentable over *Chou* in view of *England*, *Patel* and *Zitlaw*. Independent claim 26 recites a machine readable medium storing instructions structured to cause a machine to: receive a password routine, the password routine being digitally signed using a private key; authenticate the password routine using a public key associated with the private key; store the password routine in a first area of a memory device, the first area of the memory device being unavailable to a memory management unit, the memory device including a second area, the second area being available to the memory management unit; and execute the password routine in a pre-boot environment to receive the password.

The Office action rejected independent claim 26 for obviousness using the same reasoning as in its rejection of independent claim 1. For the reasons



already discussed above in connection with the rejection of claim 1, the Office action also improperly applied the legal standard for obviousness to independent claim 26. In summary, the Office action asserts the combination of *Chou*, *England*, *Zitlaw*, and *Patel* for the general proposition of a “method of receiving a password routine ... such that it would be digitally signed and authenticated ... to include first and second memory areas ... such that it would limit the availability to [a] memory management unit.” (See p. 4, ¶ 2, of the Office action.) However, as shown above in connection with independent claim 1, the Office action fails to provide the requisite “articulated reasoning” to demonstrate that it would have been obvious for a person of ordinary skill in the art to so combine *Chou* and *England* with *Zitlaw* and *Patel*. Furthermore, nothing in this asserted general combination or its alleged motivation provides an “*apparent* reason” (i.e., readily seen reason) to combine the password routine, the memory management unit and a memory device having first and second memory areas in claim 26’s particular arrangement of causing a machine to store the password routine in the first area of the memory device, with the first area of the memory device being unavailable to the memory management unit and the second area being available to the memory management unit. Finally, independent claim 26, like independent claim 1, is not obvious because claim 26 incorporates new functionality into its combination of a memory management unit and memory device having first and second memory areas that yields unexpected and fruitful results.

Accordingly, because the Office action fails to provide an “explicit” analysis and “articulated reasoning” for combining the cited references of

*Chou*, *England*, *Zitlaw*, and *Patel*, or for combining these references elements in accordance with particular arrangement of independent claim 26, it is respectfully submitted that a *prima facie* case of obviousness has not been made. Furthermore, independent claim 26 must be found non-obvious because it incorporates new functionality into its elements that yields unexpected and fruitful results. Thus, the applicants respectfully submit that independent claim 26 and claims 27-28 depending therefrom are in condition for allowance.

**Claims 12-21: Rejection under 35 U.S.C. § 103**

The Office action rejected pending independent claim 12 under 35 U.S.C § 103(a) as being unpatentable over *Chou* in view of *Patel* and *Zitlaw*. Independent claim 12 recites an apparatus to execute a trusted software program in a pre-boot environment, the apparatus comprising: a memory device including a first memory portion and a second memory portion, the first memory portion storing the trusted software program; a memory management unit operatively coupled to the memory device, the memory management unit being unable to access the first memory portion, the memory management unit being able to access the second memory portion; and a processor operatively coupled to the memory device, the processor to execute the trusted software program in the pre-boot environment.

Like in its rejections of independent claims 1 and 26, the Office action also improperly applied the legal standard for obviousness to independent claim 12. With specific reference to independent claim 12, the present Office action initially asserts that each of the elements of independent claim 12 was known, independently, in the cited prior art. In particular, the Office action

cites *Chou* for the proposition of a memory device and a processor coupled to the memory device to execute a trusted software program in a pre-boot environment. (See p. 7, ¶ 6, of the Office action.) *Zitlaw* is cited for the proposition of a memory management unit. (See p. 8, ¶ 4, of the Office action.) Finally, *Patel* is cited for the proposition of first and second *electronic systems*, which the Office action characterizes as being equivalent to first and second *memory areas* of a *memory device*. (See p. 8, ¶ 3, of the Office action.) (The applicants respectfully note that in its rejection of claim 12, the Office action actually asserts that *Patel* is cited for the proposition of first and second memory areas of a memory device. However, this assertion directly contradicts the Office action's assertion with respect to the rejection of claim 1 in which *Patel* is cited for the proposition of first and second *electronic systems*, which are characterized as being equivalent to the first and second *memory areas* of the *memory device*. To resolve these inconsistent characterizations of *Patel*, the applicants will refer to the more specific characterization provided by the Office action in its rejection of claim 1).

Assuming, *arguendo*, that the foregoing characterization of the cited references is accurate, the Office action ultimately fails to provide the necessary "explicit" analysis containing an "articulated reasoning" for combining the cited references to render independent claim 12 obvious. Instead, like in its rejection of claims 1 and 26, the Office action merely provides a conclusory statement of obviousness, which goes against the above-described legal standard set forth by the Supreme Court in *KSR Intl. Co.* Specifically, the after citing *Chou*, *Zitlaw*, and *Patel* for the above-mentioned propositions, the Office action makes the conclusory statement that "it would

have been obvious to a person of ordinary skill in the art to modify the method of receiving a password routine of [*Chou*] to include first and second memory areas [of *Patel*] such that it would be limit [sic] the availability to the memory management unit as in [*Zitlaw*].” (See p. 8, ¶ 5, of the Office action.) Thus, like in its rejection of independent claims 1 and 26, here the asserted combination of *Chou*, *Zitlaw*, and *Patel*, as well as independent claim 12 itself, are found to be obvious just because the Office actions says they are obvious. This is an improper analysis under the legal standard for obviousness in light of *KSR Intl. Co.*

In an attempt to justify this conclusory statement, the Office action follows with an alleged motivation for its asserted combination of *Chou*, *Zitlaw*, and *Patel* – “to protect password entry and authentication from authorized [sic] disclosure/access in a pre-boot environment.” (See p. 8, ¶ 5, of the Office action.) This motivation is the same motivation used by the Office action in its rejection of independent claims 1 and 26 and, for the reasons already discussed above, falls well short of the “explicit” analysis and “articulated reasoning” for combining the elements that is needed to establish obviousness. For example, even if viewed in a most favorable light, there is no “*apparent* reason” (i.e., readily seen reason) why a motivation of providing password entry and authentication protection, without more, would cause a person of ordinary skill in the art to consider combining the memory management unit of *Zitlaw* and the two electronic systems of *Patel* with *Chou*. Without any “articulated reasoning” for combining *Zitlaw* and *Patel* with *Chou*, and without relying on impermissible hindsight, the Office action fails

to establish how combining these three references would have been obvious to a person of ordinary skill in the art.

Furthermore, even if the alleged motivation was somehow a sufficiently “explicit” analysis and “articulated reasoning” for the Office action’s asserted combination of *Chou*, *Zitlaw*, and *Patel*, this asserted general combination still fails to render independent claim 12 obvious. As previously mentioned, the Office action asserts the combination of *Chou*, *Zitlaw*, and *Patel* for the general proposition of a “method of receiving a password routine ... to include first and second memory areas ... such that it would limit the availability to [a] memory management unit.” (See p. 8, ¶ 5, of the Office action.) Nothing in this asserted general combination or its alleged motivation bears any “*apparent*” (i.e., readily seen) relationship to the actual recitation of independent claim 12. For example, it is not readily seen how the Office action’s general proposition of a “method of receiving a password routine” is related to independent claim 12’s recitation of “an apparatus to execute a trusted software program.” Instead, the Office action seems to have merely copied the paragraph concerning its asserted general combination of *Chou*, *Zitlaw*, and *Patel*, along with its alleged motivation, directly from the rejection of claims 1 and 26 without considering that the recitations of claims 1 and 26 are different from the recitation of claim 12. Certainly, such a blatant disconnect between the Office action’s asserted general combination of *Chou*, *Zitlaw*, and *Patel* and the actual recitation of independent claim 12 cannot yield the “explicit” analysis and “articulated reasoning” the Supreme Court requires for a finding of obviousness.

Accordingly, because the Office action fails to provide an “explicit” analysis and “articulated reasoning” for combining the cited references of *Chou*, *Zitlaw*, and *Patel*, or for combining these references elements in accordance with the actual recitation of independent claim 12, it is respectfully submitted that a *prima facie* case of obviousness has not been made. Thus, the applicants respectfully submit that independent claim 12 and claims 13-21 depending therefrom are in condition for allowance.

**Claims 22-25: Rejection under 35 U.S.C. § 103**

The Office action rejected pending independent claim 22 under 35 U.S.C § 103(a) as being unpatentable over *Chou* in view of *Patel* and *Zitlaw*. Independent claim 22 recites an apparatus to collect a password in a pre-boot environment, the apparatus comprising: a memory device including a first memory portion and a second memory portion, the second memory portion storing a keyboard driver, a display driver, graphics routine, and a password collection routine; a memory management unit operatively coupled to the memory device, the memory management unit being able to access the first memory portion, the memory management unit being unable to access the second memory portion; and a processor operatively coupled to the memory device, the processor to execute the keyboard driver, the display driver, the graphics routine, and the password collection routine in the pre-boot environment to collect the password in the pre-boot environment.

The Office action rejected independent claim 22 for obviousness using the same reasoning as in its rejection of independent claim 12. For the reasons already discussed above in connection with the rejection of claim 12, the Office action also improperly applied the legal standard for obviousness to

independent claim 22. In short, in its rejection of both claims 12 and 22, the Office action asserts the combination of *Chou*, *Zitlaw*, and *Patel* for the general proposition of a “method of receiving a password routine ... to include first and second memory areas ... such that it would limit the availability to [a] memory management unit.” (See p. 8, ¶ 5, of the Office action.) However, as shown above in connection with independent claim 12, the Office action fails to provide the requisite “articulated reasoning” to demonstrate that it would have been obvious for a person of ordinary skill in the art to so combine *Chou* with *Zitlaw* and *Patel*.

Furthermore, the Office action ultimately fails to provide the necessary “explicit” analysis containing an “articulated reasoning” for how the asserted combination of *Chou*, *Zitlaw* and *Patel* would actually render the specific recitation of independent claim 22 obvious. Nothing in the asserted general combination of *Chou*, *Zitlaw* and *Patel*, or its alleged motivation, bears any “*apparent*” (i.e., readily seen) relationship to the actual recitation of independent claim 22, which is directed to an apparatus comprising, *inter alia*, a processor to execute a keyboard driver, a display driver, a graphics routine, and a password collection routine in a pre-boot environment. For example, the Office action’s asserted general combination of *Chou*, *Zitlaw* and *Patel* fails to teach or fairly suggest the processor to execute any or all of the keyboard driver, the display driver or the graphics routine. As noted above in connection with independent claim 12, the Office action seems to have merely copied its asserted general combination of *Chou*, *Zitlaw*, and *Patel*, along with its alleged motivation, directly from the rejection of claims 1 and 26 without considering that the recitations of claims 1 and 26 are different from the

recitation of claim 22. Certainly, such a blatant disconnect between the Office action's asserted general combination of *Chou*, *Zitlaw*, and *Patel* and the actual recitation of independent claim 22 cannot yield the "explicit" analysis and "articulated reasoning" the Supreme Court requires for a finding of obviousness.

Accordingly, because the Office action fails to provide an "explicit" analysis and "articulated reasoning" for combining the cited references of *Chou*, *Zitlaw*, and *Patel*, or for combining these references elements in accordance with the actual recitation of independent claim 22, it is respectfully submitted that a *prima facie* case of obviousness has not been made. Thus, the applicants respectfully submit that independent claim 22 and claims 23-25 depending therefrom are in condition for allowance.

If the examiner is of the opinion that a telephone conference would expedite the prosecution of this case, the examiner is invited to contact the undersigned at the number identified below.

Respectfully submitted,

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